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EXAMINER
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KLIMOWICZ, WILLIAM JOSEPH

ART UNIT	PAPER NUMBER
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2627

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/643,265

Applicant(s)

HIRANO ET AL.

Examiner

William J. Klimowicz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Status*

Claims 1-8 are currently pending, of which, claims 1, 4, 5 and 8 are independent.

### *Claim Rejections*

Insofar as the claims can be best understood in light of the Applicant's disclosure, the following rejections, articulated in detail, are deemed *prima facie* appropriate, based on a preponderance of the evidence.

As recited **MPEP§2106**:

Office personnel are to give claims their ***broadest reasonable interpretation*** in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). ***Limitations appearing in the specification but not recited in the claim are not read into the claim.*** *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow. . . . The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed. . . . An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process."). [Emphasis in bold italics added].

As set forth in the **MPEP§ 706**, "the standard to be applied in all cases is the '*preponderance of the evidence*' test. In other words, *an examiner should reject a claim* if, in view of the prior art and evidence of record, *it is more likely than not that the claim is unpatentable.*" .") Emphasis in bold italics added.

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Moreover, one should keep in mind that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Moreover still, a *preamble* is generally not accorded any patentable weight where it *merely recites the purpose of a process or the intended use of a structure*, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

With these comments as a backdrop, the Examiner vigorously and strenuously maintains the following rejections

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plotto (US 4,473,855 ) in view of Zhang et al. (US 6,396,667 B1).

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As per claim 1 and 5, Plotto (US 4,473,855 ) discloses a disk drive (e.g., see COL. 1, line 16, *et seq.*) and an airflow shroud for a slider, comprising: a frame portion (PROTECT) having an opening suitable for exposing an air bearing surface of a slider (SV) for a disk drive, the frame portion (PROTECT) surrounding the slider (SV); and an attachment portion adapted for attachment to a suspension (SUSP/PLAQ) of a disk drive (e.g., see, *inter alia*, COL. 7, lines 17-21). Note that the (SUSP) and the integral portion (PLAQ) support and suspend the slider (SV) as a whole.

Per claim 1 and claim 5, however, Plotto (US 4,473,855 ) does not expressly disclose a moving-slider-type microactuator coupled to the slider.

Zhang et al. (US 6,396,667 B1) discloses a slider and head suspension of an analogous type disclosed by Plotto (US 4,473,855 ), but additionally expressly teaches providing a moving-slider-type microactuator (including 66, 64, 176) coupled to a slider (24) for the purpose of providing a small microactuator that advantageously allows high resolution head positioning (e.g., see, *inter alia*, COL. 1, line 39 *et. seq.*)

Given the express teachings and motivations, as espoused by Zhang et al. (US 6,396,667 B1), it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the moving-slider-type microactuator as taught by Zhang et al. (US 6,396,667 B1), to the slider of Plotto (US 4,473,855 ).

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the moving-slider-type microactuator as taught by Zhang et al. (US 6,396,667 B1), to the slider of Plotto (US 4,473,855 ) in order to provide a small microactuator that

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advantageously allows high resolution head positioning (e.g., see, *inter alia*, COL. 1, line 39 *et seq.*)

Additionally, as per claims 3 and 7, Plotto (US 4,473,855 ), in combination with Zhang et al. (US 6,396,667 B1), however, remains silent as to the specific relationships set forth in claims 3 and 7, i.e., wherein between about 50 to 100 micrometers of the slider (SV) are exposed through the opening of the frame portion.

Given the teachings of Plotto (US 4,473,855 ), however, to expressly minimize turbulence effects on the transducer and its associated components, wherein only a slight portion of the air bearing slider is exposed through the opening as seen in FIG. 5b, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to provide an approximate range of the slider exposure through the opening, including the range of “about 50 to 100 micrometers of the slider” in the course of routine optimization/ experimentation and thereby obtain various standard optimized relationships including those set forth in claims 3 and 7.

That is, given the teachings of Plotto (US 4,473,855 ), however, to expressly minimize turbulence effects on the transducer and its associated components, wherein only a slight portion of the air bearing slider is exposed through the opening as seen in FIG. 5b, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to provide an approximate range of the slider exposure through the opening, including the range of “about 50 to 100 micrometers of the slider” in the course of routine optimization/ experimentation and thereby obtain various standard optimized relationships including those set forth in claims 3 and

7 in order to protect the majority of the slider from the impinging effects of turbulent air on the slider by providing a minimal exposure of the slider, e.g., “about 3 micrometers,” while also providing sufficient slider shroud protection while allowing enough the of the air bearing surfaces of the slider to provide the desired floating quality, e.g., an upper range of exposure at “about 50 micrometers.” Such a range of slider exposure through the frame opening of “about 50 to 100 micrometers of the slider” is considered to be within the level of ordinary skill in the art, given the teachings and suggestion of Plotto (US 4,473,855 ).

Additionally, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plotto (US 4,473,855 ) in view of Zhang et al. (US 6,396,667 B1) as applied to claim 1 and claim 5, respectively, above, and further in view of Severson (US 6,549,365 B1).

See the description of Plotto (US 4,473,855 ) and Zhang et al. (US 6,396,667 B1), *supra*.

As per claims 2 and 6, Plotto (US 4,473,855 ) does not expressly disclose wherein the frame portion (PROTECT) has side portions forming the opening and a tapered shape between each side portion and the opening.

Severson (US 6,549,365 B1), however, discloses an analogous frame/shroud for diverting air currents directed at the slider, wherein Severson (US 6,549,365 B1) additionally discloses wherein the frame portion has side portions inclusive of a tapered shape between each side portion and the opening. See embodiments of Figures 8-12 of Severson (US 6,549,365 B1).

Given the express teachings and motivations, as espoused by Severson (US 6,549,365 B1), it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the frame portion of Plotto (US 4,473,855) (in combination with Zhang et al. (US 6,396,667 B1)) as having side portions inclusive of a tapered shape between each side portion and the opening, as expressly suggested by the embodiments of FIGS. 8-12 of Severson (US 6,549,365 B1).

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the frame portion of Plotto (US 4,473,855) (in combination with Zhang et al. (US 6,396,667 B1)) as having side portions inclusive of a tapered shape between each side portion and the opening, as expressly suggested by the embodiments of FIGS. 8-12 of Severson (US 6,549,365 B1) in order to “avoid sharp compression corners and expansion corners in the flow field,” thus minimizing “boundary layer separation and flow instabilities.” See Severson (US 6,549,365 B1) at COL. 6, lines 4-8.



Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosikawa (JP 01-158605 A) in view of Mei et al. (US 6,611,399 B1).

As per claims 4 and 8, Kosikawa (JP 01-158605 A) discloses an airflow shroud capable of being used with a moving-head-type microactuator in a disk drive, comprising: a plate portion (e.g., rear portion of shroud (31)) attachable to a slider (31), and a recessed portion (e.g., window within shroud (31)) corresponding to a moving-head-type microactuator of the slider, when positively coupled to such slider.

As per claims 4 and 8, *assuming* that the limitations of claims 4 and 8 *positively* require the moving-head-type microactuator on the slider (11), Mei et al. (US 6,611,399 B1) discloses such a conventional moving-head-type microactuator.

Given the express teachings and motivations, as espoused by Mei et al. (US 6,611,399 B1), it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the moving-head-type microactuator as taught by Mei et al. (US 6,611,399 B1), with the shroud covering of Kosikawa (JP 01-158605 A).

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the moving-head-type microactuator as taught by Mei et al. (US 6,611,399 B1), with the shroud covering of Kosikawa (JP 01-158605 A), in order to allow fine-tuned vertical and lateral head displacement at the slider level, as advantageously disclosed by Mei et al. (US 6,611,399 B1), while simultaneously obstructing the convergence of leakage flux from outside of a magnetic pole associated with the slider, as espoused by Kosikawa (JP 01-158605 A).

***Response to Arguments***

Applicants' arguments filed March 9, 2007 have been fully considered but they are not persuasive.

The Applicants allege that Plotto fails to teach or suggest an attachment portion adapted for attachment to a suspension of a disk drive.

Contrary to the Applicants' allegations, however, the facts as unambiguously evidenced by Plotto clearly show otherwise.

Plotto discloses a frame portion (PROTECT ) having an opening suitable for exposing an air bearing surface of a slider (SV) for a disk drive, the frame portion (PROTECT) surrounding the slider (SV). An attachment portion is "adapted" for attachment to a suspension (SUSP/PLAQ) of a disk drive (e.g., see, *inter alia*, COL. 7, lines 17-21, which states: "[t]he device PROTECT<sub>11</sub> is fastened by appropriate means, for example by rivoting or by welding, to a plate PLAQ<sub>11</sub> [i.e., the suspension itself] secured by means which are not shown to the carriage which carries the said platform PL<sub>11</sub>"). Note that the (SUSP) and the integral portion (PLAQ) support and suspend the slider (SV) as a whole; they are not separate entities as the Applicant's would apparently have the Examiner believe.

Moreover, if it is indeed the Applicants' position that (PLAQ) is not part of the suspension, the Applicants do not provide any reason(s) for such an implication.

Moreover, by continually arguing that claim 1 *encompasses more* than an airflow shroud per se, it appears that the Applicants are of the opinion that the claim is a combination claim, drawn to an airflow shroud **and** a suspension. At least this is what the Applicant appears to be arguing. It is noted, however, that the claim recitation of a suspension only appears in the body

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of the claim, merely recited as a *capability* for the attachment portion of the positively recited shroud to be *adapted* for attachment to a suspension. Based on patent claim language construction, it is clear that since the claimed suspension is not even recited in the preamble of the claim, and the attachment portion of the shroud is only *adapted* to be attached to a suspension, the Examiner need not even disclose a suspension, but only a shroud having an attachment portion with the *capability* of attachment to a suspension; of course as discussed in the rejection above, the Examiner has gone one step further, actually providing evidentiary support of attachment between the shroud attachment portion and suspension. See *In re Hirao and Kropa v. Robie, supra*. See also MPEP 2111.02

As per the rejection of claims 3 and 7 as being unpatentable to Plotto (US 4,473,855) in combination with Zhang et al. (US 6,396,667 B1), the Applicants are of the opinion that the claimed range of “ ‘about 50 to 100 micrometers of the slider’ is not within the course of routine optimization and experimentation...” Emphasis in original.

Again, firstly, as noted with regard to claim 1, *supra*, (claim 3 depends directly from claim 1), the preamble is drawn merely to a shroud for moving-slider-type microactuator (not a slider, per se). The claim recitation of a slider only appears in the body of the claim, wherein a frame portion of the positively recited frame of the shroud has an opening merely “*suitable* for exposing an air bearing surface of a slider” (emphasis added). It certainly can be argued that the limitation of the slider and its relationship to the frame portion in at least claim 1 and 3, and perhaps claims 5 and 7 as well, is the mere capability of positioning the slider within the frame to such a prescribed range, since the claims appear only drawn to an airflow shroud (claims 1

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and 3), and in claim 5 (and claim 7), the slider is recited in the body of the claim merely as a capability of being used within the frame. That is, e.g., claim 5 does not recite *positively* recite a slider (e.g., a *positive* slider recitation would be similar to language such as “A disk drive . . . . comprising an airflow shroud, a moving slider-type actuator, a slider, the airflow shroud including a frame portion having an opening which exposes an air bearing surface of said slider.” This language, would clearly positively require a slider and any further limitation of a range of slider exposure relative to the frame would also be a positive limitation).

However, assuming arguendo, that the slider is a positive limitation of claims 3 and 7, the Examiner maintains that given the teachings of Plotto (US 4,473,855 ) to expressly minimize turbulence effects on the transducer and its associated components, wherein only a slight portion of the air bearing slider is exposed through the opening as seen in FIG. 5b, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to provide an approximate range of the slider exposure through the opening, including the range of “about 50 to 100 micrometers of the slider” in the course of routine optimization/ experimentation and thereby obtain various standard optimized relationships including those set forth in claims 3 and 7.

It is noted by the Examiner that Plotto implicitly appreciates that variability of the amount of slider air bearing exposure from the shroud (PROTECT). That is, there indeed must be some slider exposure for the slider to fly at all above a rotating disc, in order to create the forces necessary for proper slider loading (otherwise, the shroud would scrape the disc, and as an artisan skilled in the art readily knows, the slider must fly as close to the disc as possible in order

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to increase recording/readback resolution); that is, this is a situation in which there are certainly not “numerous parameters” to try. Rather, the only parameter to be varied is indeed the amount of slider ABS exposure from the shroud; moreover, Plotto already acknowledges that the whole point of providing the shroud, is to expressly “eliminate the parasitic forces caused by air turbulence.” Col. 4, ll. 20-22.

The Examiner maintains that in the particularized facts of this case, consideration of the “routine testing” by one having ordinary skill in the art is appropriate because the prior art as exemplified by Plotto acknowledges not only a beneficial result of providing the shield, but also predicts the such a benefit would provide a range of protection on the slider-air-turbulence interface, by *limiting* the turbulence or *canceling* it entirely. *Id.* col. 4, ll. 26-28.

The claimed ranges in claims 3 and 7, absent any unexpected results, given such a teaching espoused by Plotto, would indeed cause one having ordinary skill in the art to find a workable range of values for such a desired particular range of protection, making it possible to “eliminate the parasitic forces caused by the air turbulence . . . [by] *modifying* the flow of air . . . it [is] possible to *limit* or even *cancel* the actions of the turbulent layers on the flying height of the principal member.” *Id.* at col. 4, ll. 20-28. Emphasis added.

Thus based on the evidence, the Examiner’s conclusion here relies on the fact that one skilled in the art would have had a reasonable expectation of success at the time the invention was made, and merely had to verify that expectation of a desired workable range of particular flying heights of the slider (by amount of slider exposure) weighed against the desired amount of protection from air turbulence (by amount of slider exposure from frame of shroud). Simply put, to conclude that the amount of exposure of the slider ABS from the shroud frame would have

been obvious, “the prior art, common knowledge, or the nature of the problem, viewed through the eyes of an ordinary artisan” merely had to suggest that such a variance of slider ABS exposure produced beneficial results, which Plotto does - e.g., see col. 4, ll. 20-28.

The Examiner finds this situation analogous to the optimization of a range or other variable within the claims that flows from the “normal desire of scientists or artisans to improve upon what is already generally known.” *In re Peterson*, 315 F.3d 1325, 1330 (Fed. Cir. 2003) (determining where in a disclosed set of percentage ranges the optimum combination of percentages lies is *prima facie* obvious). In *In re Aller*, 220 F.2d 454, 456 (C.C.P.A. 1955), it was held that the discovery of an optimum value of a variable in a known process is usually obvious. See also *In re Boesch*, 617 F.2d 272, 276 (C.C.P.A. 1980) (“[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.”); *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (“[I]t is not inventive to discover the optimum or workable ranges by routine experimentation.” (quoting *Aller*, 220 F.2d at 456)); *In re Kulling*, 897 F.2d 1147, 1149 (Fed. Cir. 1990) (finding no clear error in Board of Patent Appeals and Interferences’ conclusion that the amount of eluent to be used in a washing sequence was a matter of routine optimization known in the pertinent prior art and therefore obvious).

Based on the teachings of Plotto, and the skill of one having ordinary skill in the art, the Examiner maintains that the experimentation needed, then, to arrive at the particular claimed ranges in the instant application, is “nothing more than routine” application of a well-known problem-solving strategy, *Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 809 (Fed. Cir.

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1989), and the Examiner concludes this is, “the work of a skilled [artisan], not of an inventor.” *DyStar*, 464 F.3d at 1371; see also *In re Luck*, 476 F.2d 650, 652-53 (C.C.P.A. 1973) (use of routine testing to identify optimum amounts of silane to be employed in a lamp coating, without establishing a critical upper limit or demonstrating any unexpected result, lies within the ambit of the ordinary skill in the art); *In re Esterhoy*, 440 F.2d 1386, 1389 (C.C.P.A. 1971) (“One skilled in the art would thus manifestly operate the Switzer et al. process under conditions most desirable for maximum and efficient concentration of the acid. The conditions recited in the claims appear to us to be only optimum and easily ascertained by routine experimentation.”); *In re Swentzel*, 219 F.2d 216, 219 (C.C.P.A. 1955) (“It may well be that the size represents the largest particles suitable for appellant’s purpose, but the determination of that desired size under the present circumstances involves nothing more than routine experimentation and exercise of the judgment of one skilled in the art.”); *In re Swain*, 156 F.2d 246, 247-48 (C.C.P.A. 1946) (“In the absence of a proper showing of an unexpected and superior result over the disclosure of the prior art, no invention is involved in a result obtained by experimentation.”); “the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success.” *Merck*, 874 F.2d at 809 (quoting *In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988)). For these reasons, the Examiner is of the opinion, based on a preponderance of the evidence, in conjunction with analogous case law, a skilled artisan would have had a reasonable expectation of success with the modification of the amount of slider ABS exposure from the frame to arrive at a prescribed fly height, while also weighing the consideration of the amount of air turbulence impinging on the slider, i.e., to “limit” the parasitic airflow turbulence by having more of the slider being exposed from the

shroud frame, or to “cancel” the turbulence altogether by leaving only the minimal amount of slider exposure from the shroud to fly the slider. Moreover, it is worth noting that Plotto certainly does not teach away from the claimed ranges. Thus, it is the opinion of the Examiner that a requisite *prima facie* case of obviousness has been established with regard to the claims.

As per claims 2 and 6, the Applicants allege that the combination of Severson to Plotto and Zhang would teach away from the invention, since Severson teaches that the airflow control structure “is placed upstream from the head and forms a channel within which the head moves across the disk.” Page 7, Applicants’ response.

The Examiner respectfully disagrees with the Applicants’ allegations. More specifically, as per claims 2 and 6, Plotto does not expressly disclose wherein the frame portion (PROTECT) has side portions forming the opening and a tapered shape between each side portion and the opening.

Severson, however, discloses an analogous frame/shroud for diverting air currents directed at the slider, wherein Severson additionally discloses the frame portion has side portions inclusive of a tapered shape between each side portion and the opening. See embodiments of Figures 8-12 of Severson.

Given the express teachings and motivations, as espoused by Severson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the frame portion of Plotto (in combination with Zhang et al.) as having side portions inclusive of a tapered shape between each side portion and the opening, as expressly suggested by the embodiments of FIGS. 8-12 of Severson in order to “avoid sharp compression corners and expansion corners in the flow field,” thus minimizing “boundary layer separation and flow



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instabilities.” See Severson at COL. 6, lines 4-8. The Examiner is not relying on the direct incorporation of all the structure of Severson, just merely what advantage would be bestowed upon airflow control device having such lead edge tapers.

As it pertains to Applicants’ arguments regarding the rejection of claims 1-3 and 5-7 under 35 U.S.C. 103(a) as being unpatentable over Hosono et al. (JP 03-069005 A) in view of Zhang et al. (US 6,396,667 B1), the arguments have been deemed moot. The Examiner has vacated the rejection as being superfluous in that claims 1-3 and 5-7 have already been rejected using other art.

As per the rejection of claims 4 and 8 under 35 U.S.C. 103(a) as being unpatentable over Kosikawa (JP 01-158605) in view of Mei (U.S. 6,611,399 B1), the Applicants requested that a copy of a full English language translation be provided. The Examiner has provided a full copy of such a translation, obtained from the USPTO STIC Library.

The Examiner based his previous rejection on the English language abstract of Kosikawa (JP 01-158605) and the drawings; the entire translation of Kosikawa (JP 01-158605) fails to nullify such a rejection.

The Applicant states:

Kosikawa is cited as teaching an airflow shroud. However, Applicants understand Kosikawa to teach a magnetic flux shroud (translated abstract). An airflow shroud is very different from a magnetic flux shroud. For this rational, Claims 4 and 8 are patentable over Kosikawa in view of Mei because Kosikawa alone or in combination with Mei fail to teach or suggest the claimed embodiments of the present invention.

The Examiner readily agrees with the Applicant that one of the functions of the shield of Kosikawa (JP 01-158605) is to provide protection of leaking magnetic flux from the head.

Kosikawa (JP 01-158605 A) even admittedly fails to expressly mention that the shield functions as an airflow shroud. This however, is not dispositive. Moreover, the claimed structure as it pertains to the airflow shroud clearly reads on the shield of Kosikawa (JP 01-158605 A). By providing the shield over the sides of the slider and back of the slider (except for a recess in the back of the plate of the shield), the shield inherently and more specifically, must necessarily function also as an airflow shroud, since the slider side edges and tops do not directly impinge air because the shielding covers the slider except at the surface facing the media, and a recess in the back of the slider. That is, as per the claimed invention, Kosikawa (JP 01-158605 A) discloses an airflow shroud *capable* (again, here is “intended use” - see discussion of intended use, *supra*) of being used with a moving-head-type microactuator in a disk drive, comprising: a plate portion (e.g., rear portion of shroud (31)) attachable to a slider (31), and a recessed portion (e.g., window within shroud (31)) corresponding to a moving-head-type microactuator of the slider, when, *or if ever*, positively coupled to such slider.

Even *assuming* that the limitations of claims 4 and 8 *positively* require the moving-head-type microactuator on the slider (11), Mei et al. (US 6,611,399 B1) discloses such a conventional moving-head-type microactuator.

Given the express teachings and motivations, as espoused by Mei et al. (US 6,611,399 B1), it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the moving-head-type microactuator as taught by Mei et al. (US 6,611,399 B1), with the shroud covering of Kosikawa (JP 01-158605 A) in order to allow fine-tuned vertical and

lateral head displacement at the slider level, as advantageously disclosed by Mei et al. (US 6,611,399 B1), while simultaneously obstructing the convergence of leakage flux from outside of a magnetic pole associated with the slider, as espoused by Kosikawa (JP 01-158605 A).

The Applicant's statement that "[a]n airflow shroud is very different from a magnetic flux shroud" is well taken; it is noted however, that the structure set forth in claims 4 and 8 simply reads on the structure disclosed by Kosikawa (JP 01-158605 A).

In *In re Schreiber*, 44 USPQ 1429 (Fed. Cir. 1997), the CAFC ruled that a *prima facie* case of limitation anticipation exists where the prior art contains all the claimed structural limitations and the claimed functional limitations are inherent in the prior art structure even though the claimed invention recites a new and entirely different use. In the *Schreiber* case, a rejection of a dispensing top for popped popcorn was held to be anticipated by a similar structure for a completely different use (an oil can dispenser).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

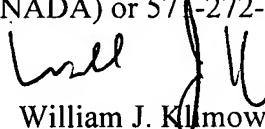
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
William J. Klimowicz  
Primary Examiner  
Art Unit 2627

WJK